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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,002	07/31/2003	Anurag Mittal	2002P12442US01	2314
7590 Siemens Corporation Intellectual Property Department 170 Wood Avenue South Iselin, NJ 08830			EXAMINER DIEP, NHON THANH	
			ART UNIT	PAPER NUMBER

2621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/632,002

Applicant(s)

MITTAL ET AL.

Examiner

Nhon T. Diep

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/31/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: There is no discussion with regard to figs. 1-6, inclusive in the specifications. Appropriate correction is required without introducing new matters.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-17 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1, ln. 8 and claim 23, ln. 11 recite the limitation "the" in "in the scene". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-17 and 23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Regarding to claim 23, claim 23 recites a program storage device; however, it does not comply with the Interim Guidelines, Annex IV. The examiner suggests to amend claim 23 to include "a computer-readable medium encoded with a computer program and when executed by

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the computer to perform method steps for..." to overcome the 101 rejections. Claim 23 is an evidence to show that claims 1-17 claim only a program and are rejected for the same reason.

7. Claims 1-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-17 claim a method of tracking an object. Since the method claim of claims 1-17 does not have substantial practical application as required in the Interim Guidelines, in particular, the tangible requirement does require that the claims must recite more than a 101 judicial exception, in that the process claim must set forth a practical application of that 101 judicial exception to produce a real-world result. Regarding to claims 1-17, the claims is determined lacking tangible result since all the steps cited in the claims, only manipulate data, evaluating data, incorporating new data ; however, at the end, the result is not used to provide any real-world application.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-7, 9-11, 13, 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Kumar et al (US 5,963,664).

Kumar et al discloses a method and system for image combination using a parallax based technique comprising the same steps of: providing a plurality of cameras

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(fig. 1, el. 104-1 and 104-2); determining an image from each camera (fig. 3, el. 302 and 304); determining a common plane in the images (fig. 3, el. 300); determining a parallax for scene points across the images; incorporating the parallax as a feature in a background model (col. 5, ln. 63 – col. 6, ln. 40); and estimating a change in the scene using the background model (col. 7, ln. 11-15 and col. 9, ln. 6-16) as specified in claims 1, 18 and 23; wherein at least one camera is a pan-tilt-zoom camera (fig. 11, camera 1104 and col. 16, ln. 23-26) as specified in claims 2 and 21; wherein at least one camera is uncalibrated (col. 13, ln. 66 – col. 14, ln. 6) as specified in claims 3 and 20; further comprising: providing a pan-tilt-zoom camera; determining a mosaic for the pan-tilt-zoom camera from images captured from the pan-tilt-zoom camera; and registering the mosaic and the images from the pan-tilt-zoom camera and the plurality of cameras according to a common plane in the scene (col. 4, ln. 56 – col. 5, ln. 17 and common plane = any arbitrary parametric surface) as specified in claim 4; further comprising inter-frame registration of images captured from the pan-tilt-zoom camera (col. 4, ln. 56 – col. 5, ln. 17 and fig. 11, camera 1104 and col. 16, ln. 23-26) as specified in claims 5 and 22; wherein the background model comprises a feature (shape mosaic, el. 206 of fig. 2) as specified in claim 6; wherein the feature is one of an intensity and an edge (motion field is used to generate shape mosaic and the determination of motion field involves intensities, col. 7, ln. 63 – col. 8, ln. 19) as specified in claim 7; further comprising determining a change according to the background model (col. 7, ln. 11-15 and col. 9, ln. 6-16) as specified in claim 9; further comprising obtaining a height from the parallax that is invariant to the motion of the object through the scene (col. 4, ln. 20-

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55 and fig. 10) as specified in claim 10; further comprising providing a control strategy for controlling the cameras such that a probability of the object being visible in a next image is maximized (fig. 4, el. 406 and col. 8, ln. 52 – col. 9, ln. 5) as specified in claim 11; further comprising obtaining a relationship between observations from different cameras via a homography relationship for the common registered plane (fig. 3, positions of camera that took images 302 and 304 and common plane 300) as specified in claim 13; wherein the parallax is determined between views of two cameras (fig. 3) as specified in claim 19.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al, in view of Zhang et al (US 6,774,889).

As applied to claim 1 above, it is noted that Kumar et al does not particularly disclose the step of determining the background model by one of a mixture-of-Gaussians and a non-parametric kernel as specified in claim 8. Zhang et al teaches the using of a Gaussian distribution to provide the mean pixel intensity of the background and the variance therefrom to compute the background model. And, therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was

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made to modify the system of Kumar et al by using a well-established Gaussians to determine a background model. Doing so would help to simplify the process.

Regarding to claim 12: Since, any image after being zoomed in becomes more focus on a much smaller area and in order to detect moving object in the image, and therefore, it would have been obvious that the velocity of moving object affects the degree of zooming or in other words, the maximum possible zoom is depends on the velocity of moving object.

12. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al, in view of LeClerc et al (US 6,674,877).

As applied to claim 1 above, it is noted that Kumar et al does not particularly disclose the step of providing a control strategy for acquiring user defined relevant information for a plurality number of objects in a scene and wherein providing the control strategy further comprises: providing a probability density function for the object; and providing a model for object motion; wherein providing the control strategy further comprises providing a user specification; and further comprising controlling the cameras according to the user specification and the change in the scene as specified in claims 14-17. LeClerc et al teaches the using of probability density function in detecting changes in three dimensional shape. And therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the system of Kumar et al by using PDF as taught by LeClerc et al. Doing so would help to detect changes in three dimensional shape. With regard to the user specifications or user defined relevant information, it would have been obvious that any user defined

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information and/or specifications can be incorporated into the PDF and as a direct result, help to control the cameras as desired.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Guo et al (US 6,353,678) discloses a method and apparatus for detecting independent motion in 3-D scenes.

b. Wixson et al (US 6,396,961) discloses a method and apparatus for fixating a camera on a target point using image alignment.

c. Mai et al (US 6,928,194) discloses a system for mosaicing digital ortho-images

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhon T. Diep whose telephone number is 571-272-7328. The examiner can normally be reached on m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ND
1/8/2007



NHON DIEP
PRIMARY EXAMINER